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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,297	08/20/2001	Setho Sing Fee	4738US (00-1113)	5686
24247	7590	12/28/2004	EXAMINER	
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			GRAYBILL, DAVID E	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

2/20

Office Action Summary	Application No. 09/933,297	Applicant(s) FEE ET AL.	
	Examiner David E Graybill	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 36-40 and 45-48 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 36-40 and 45-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

The reply filed on 10-18-4 is not fully responsive to the prior Office action because it fails to conform to the provisions of MPEP 714.03:

37 CFR 1.111. Reply by applicant or patent owner to a non-final Office action.

(b) In order to be entitled to reconsideration or further examination, the applicant or patent owner must reply to the Office action. The reply by the applicant or patent owner must be reduced to a writing which distinctly and specifically points out the supposed errors in the examiner's action and must reply to every ground of objection and rejection in the prior Office action. The reply must present arguments pointing out the specific distinctions believed to render the claims, including any newly presented claims, patentable over any applied references. If the reply is with respect to an application, a request may be made that objections or requirements as to form not necessary to further consideration of the claims be held in abeyance until allowable subject matter is indicated. The applicant's or patent owner's reply must appear throughout to be a bona fide attempt to advance the application or the reexamination proceeding to final action. A general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references does not comply with the requirements of this section.

(c) In amending in reply to a rejection of claims in an application or patent under reexamination, the applicant or patent owner must clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. The applicant or patent owner must also show how the amendments avoid such references or objections.

Where a bona fide response to an examiner's action is filed before the expiration of a permissible period, but through an apparent oversight or inadvertence some point necessary to a complete response has been omitted - such as an amendment or argument as to one or two of several claims involved or signature to the amendment - the examiner, as soon as he or she notes the omission, should require the applicant to complete his or her response within a specified time limit (usually one month) if the period for response has already expired or insufficient time is left to take action before the expiration of the period. If this is done the application should not be held abandoned even though the prescribed period has expired.

Specifically, the reply fails to present arguments pointing out the specific distinctions believed to render new claims 45-48 patentable over the applied references.

Because the response appears to be bona fide, but through an apparent oversight or inadvertence the response is incomplete, and in order

to continue to afford applicant the benefit of compact prosecution, the requirement to complete the response within a one month time limit is waived, the amendment is entered, and the claims are examined on the merits.

In the rejections infra, generally, reference labels are recited only for the first recitation of identical claim elements.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-12, 36-40 and 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over McLellan (6498099) and Tsuji (6255740).

At column 1, lines 22-24; column3, line 9 to column 4, line 47, McLellan discloses the following:

A method of fabricating an integrated circuit package comprising: providing a semiconductor die 206 having a plurality of bonds on an active surface thereof; providing a lead frame 100 including a plurality of conductive leads 203, electrically coupling 205 a first bond of the plurality of bonds to a first portion of at least one conductive lead of the plurality of conductive leads; electrically coupling a second bond of the plurality of bonds to a second portion of the at least one conductive lead; electrically isolating the first portion of the at least one conductive lead from the second portion of the at least one conductive lead; and inherently disposing a volume of electrically insulating material (air) between the first portion of the at least one conductive lead and the second portion of the at least one conductive lead subsequent the electrically isolating the first portion from the second portion; further comprising encapsulating the semiconductor die and at least a portion of the lead frame in a dielectric material 401; wherein the electrically isolating the first portion from the second portion is effected subsequent to the encapsulating; wherein the electrically isolating the first portion from the second portion of the at least one conductive lead

inherently includes mechanically severing the at least one conductive lead between the first portion and the second portion; wherein the electrically isolating the first portion from the second portion of the at least one conductive lead includes etching to sever the at least one conductive lead between the first portion and the second portion; wherein the electrically coupling the first bond to a first portion of the at least one conductive lead includes wire bonding; wherein the electrically coupling the second bond to the second portion of the at least one conductive lead includes wire bonding; further comprising forming a notched region in a surface of the at least one conductive lead between the first portion and the second portion; further comprising encapsulating the semiconductor die and at least a portion of the lead frame including the notched region of the at least one conductive lead in a dielectric material; wherein the electrically isolating the first portion from the second portion includes separating the first portion from the second portion while leaving at least some dielectric material in the notched region; wherein the separating the first portion from the second portion includes cutting (via etching) the at least one conductive lead into the notched region from an opposing surface of the at least one conductive lead; wherein providing a lead frame including a plurality of conductive leads further includes providing the lead with a die paddle 202 and arranging each of the

plurality of conductive leads so as to extend away from an adjacent peripheral edge of the die paddle at an angle relative thereto.

A method of forming an array of electrically conductive elements on an integrated circuit package, the method comprising: securing a semiconductor die having a plurality of bonds on an active surface thereof to a lead frame having a plurality of leads; electrically coupling at least two spaced locations of each lead of the plurality of leads with at least two different bonds of the plurality of bonds; severing each lead between the spaced locations to form at least two electrically isolated conductive elements; and inherently disposing an electrically insulative material (air) between the at least two spaced locations of each lead subsequent the severing; wherein securing a semiconductor die to a lead frame further includes providing the lead frame with a die paddle and arranging each of the plurality of conductive leads so as to extend away from an adjacent peripheral edge of the die paddle at an angle relative thereto..

A method of fabricating a semiconductor die assembly, comprising: placing a semiconductor die within a plurality of leads extending laterally outwardly from peripheral edges thereof; wire bonding bonds on the semiconductor die to spaced locations on each of the leads of the plurality; transfer molding a dielectric encapsulant over the semiconductor die, wire bonds and the plurality of leads, leaving undersurfaces of the plurality of

leads exposed; severing the leads between the spaced locations; and inherently disposing a volume of electrically insulative material between the spaced locations subsequent severing each of the plurality of leads; further comprising notching upper surfaces of the leads between the spaced locations before the placing the semiconductor die within the plurality of leads; wherein the placing the semiconductor die includes securing the semiconductor die to a die paddle 202 located within the plurality of leads; wherein the severing is effected by making a linear cut (via etching) between the spaced locations on each lead extending from a common peripheral edge; further comprising notching upper surfaces of the leads between the spaced locations before the placing the semiconductor die within the plurality of leads, and wherein the linear cut is extended substantially only to a depth sufficient to intersect bottoms of the notches so that some dielectric encapsulant remains between the spaced locations; wherein placing a semiconductor die within a plurality of leads further includes providing the lead frame having a die paddle and arranging each of the plurality of conductive leads so as to extend away from an adjacent peripheral edge of the semiconductor die at an angle relative thereto; wherein notching upper surfaces of the leads further comprises defining a concavity within each of the plurality of leads exhibiting a width taken in a direction extending between the spaced locations of a first distance and

wherein severing each of the plurality of leads between the spaced locations further includes separating the spaced locations by a second distance.

To further clarify the disclosure of inherently mechanically severing, it is noted that the severing inherently uses etching tools; hence the severing inherently relates to tools. In addition, the etching relates to, is governed by, and is done in accordance with the principles of mechanics.

However, McLellan does not appear to explicitly disclose that the angle is an acute angle.

Notwithstanding, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose this particular angle because applicant has not disclosed that, in view of the applied prior art, the angle is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical, and it appears prima facie that the invention would possess utility using another angle. Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777

(Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Also, McLellan does not appear to explicitly disclose a plurality of bond pads on an active surface of the die; disposing a volume of electrically insulating material between the first portion of the at least one conductive lead and the second portion of the at least one conductive lead subsequent the electrically isolating the first portion from the second portion; or mechanical severing in the sense of severing caused by, resulting from, or relating to a process that involves a purely physical as opposed to a chemical change.

Regardless, at column 10, line 31-33; column 23, lines 57-67; and column 25, line 36 to column 28, line 6, Tsuji discloses a plurality of bond pads 41a on an active surface of the die 41; disposing a volume of electrically insulating material 64 between the first portion of the at least one conductive lead 68 and the second portion of the at least one conductive lead 68 subsequent the electrically isolating 63 the first portion from the second portion; and mechanical severing in the sense of severing caused by, resulting from, or relating to a process that involves a purely physical as opposed to a chemical change. Moreover, it would have been obvious to combine this disclosure of Tsuji with the disclosure of McClellan because it would facilitate the electrical coupling and severing, and protect the package

of McClellan. In addition, as cited, McClellan discloses etching. Furthermore, as cited, Tsuji discloses that etching and mechanical severing are alternatives and equivalents; therefore, it would have been obvious to substitute or combine the mechanical severing of Tsuji for or with the etching of McClellan. See *In re May* (CCPA) 136 USPQ 208 (It is our opinion that the substitution of Wille's type seal for the cement of Hallauer in Figure 1 would be obvious to persons of ordinary skill in the art from the disclosures of these references, merely involving an obvious selection between known alternatives in the art and the application of routine technical skills.); *In re Cornish* (CCPA) 125 USPQ 413; *In re Soucy* (CCPA) 153 USPQ 816; *Sabel et al. v. The Wickes Corporation et al.* (DC SC) 175 USPQ 3; *Ex parte Seiko Koko Kabushiki Kaisha Co.* (BdPatApp&Int) 225 USPQ 1260; and *Ex parte Rachlin* (BdPatApp&Int) 151 USPQ 56. See also *Smith v. Hayashi*, 209 USPQ 754 (Bd. of Pat. Inter. 1980) (However, there was evidence that both phthalocyanine and selenium were known photoconductors in the art of electrophotography. "This, in our view, presents strong evidence of obviousness in substituting one for the other in an electrophotographic environment as a photoconductor." 209 USPQ at 759.). An express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. In *re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). "It is prima facie

obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted). See also In re Crockett, 279 F.2d 274, 126 USPQ 186 (CCPA 1960); Ex parte Quadranti, 25 USPQ2d 1071 (Bd. Pat. App. & Inter. 1992).

McLellan also does not appear to explicitly disclose the second distance less than the first distance.

Notwithstanding, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose this particular relative distance because applicant has not disclosed that, in view of the applied prior art, the relative distance is for a particular unobvious purpose, produces an unexpected result, or is otherwise critical, and it appears prima facie that the invention would possess utility using another relative distance. Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In

re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Applicant's remarks filed 10-18-4 have been fully considered and are adequately addressed by the rejections *supra*.

The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions similar to the instant invention.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

For information on the status of this application applicant should check PAIR:

Art Unit: 2822

Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alternatively, applicant may contact the File Information Unit at (703) 308-2733. Telephone status inquiries should not be directed to the examiner. See MPEP 1730VIC, MPEP 203.08 and MPEP 102.

Any other telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.
The fax phone number for group 2800 is (703) 872-9306.



David E. Graybill
Primary Examiner
Art Unit 2827

D.G.
23-Dec-04